

## Composite Piping For Offshore Oil and Gas Industry

Robert J. Lessels/LA02  
205-544-6539

MSFC is slated to work with the Department of Mechanical Engineering at Louisiana State University to assist Specialty Plastics, Inc., of Baton Rouge, Louisiana, in developing innovative joining and fitting technologies for advanced composite piping systems for the offshore oil and gas industry in Louisiana. The U.S. Department of Commerce's National Institute of Standards and Technology has announced the awarding of a \$1.8 million advanced technology program grant to the Louisiana firm to help finance research in this "high-risk" area of technology. (The grant makes possible the undertaking of research and development projects that otherwise would not be pursued—or to which sufficient resources would not be dedicated—because of the financial and/or technical risks involved in pursuing such leading-edge technologies.) This particular effort will seek to develop high-performance composite materials (e.g., combining polymers with glass or carbon fibers) to achieve such enhanced physical properties as strength and durability.

Regarding the offshore oil and gas industry, the cost of manufacturing and erecting offshore production platforms could be reduced significantly if even a portion of the heavy metal pipelines could be replaced with lighter-weight pipeline systems made of composite materials.

By reducing the topside weight of offshore oil and gas rigs (known as tension-leg platforms in the industry) that are required to access deep-water reserves in the Gulf of Mexico, an estimated \$250,000 could be saved per meter of water depth—about \$150 million per offshore platform. The composite pipe could be used for fire-water piping, sea-water cooling, and drainage systems and sewerage, if the design team can adequately develop methods of joining pipe segments and manufacturing low-cost, high-strength pipe fittings. Accessing deep-water oil resources in the Gulf of Mexico could help reduce excessive U.S. dependence (\$1 billion per week) on foreign oil.

Making advanced composite piping economically feasible could benefit other industries as well. About \$20 billion is spent annually by the petrochemical, pulp and paper, and marine industries in combating the corrosion of pipes made with present-day materials.

This project has an estimated completion date of September 1998.

**Sponsor:** Office of Commercial Development and Technology Transfer

**University Involvement:** Louisiana State University

**Industry Involvement:** Specialty Plastics, Inc., Baton Rouge, Louisiana

